REMARKS

This amendment is responsive to the non-Final Office Action of July 15, 2009. Reconsideration and allowance of claims 1, 3-7, and 11-15 are requested.

The Office Action

Claims 1-7 and 12-13 stand rejected under 35 U.S.C. § 101.

Claim 11 stands rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement.

Claims 1, 3-7, and 11-13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Brunk et al. (USPGPUB 2002/0157005).

The Present Application

The present application is directed to an apparatus and method for authenticating an audio-visual signal by acquiring signatures from blocks of an image such that the blocks may include un-watermarkable content. The signatures are combined and spread throughout the entire image.

The References of Record

Brunk et al. discloses calculating a metric of an embedded digital watermark and embedding the watermark into a media signal. The computed metric is detected from a potentially corrupted version of the media signal and compared to the embedded metric.

Specification

According to the Office Action Summary, the specification stands objected by the Examiner. However, the Detailed Action does not include an explanation of an objection to the specification. However, the Examiner does assert that a "computer-readable medium" is not accurately defined and does not capture the metes and bounds of the term. The Applicants respectfully disagree. According to MPEP 2106.01, which states:

> "When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized."

With reference to Figure 4 and page 6, lines 1-7 of the specification, the computer-readable medium 400 satisfies the functional descriptive material requirement because the computer-readable medium 400 includes program modules 410, 420, 430, and 440 as shown in Figure 4. The MPEP further states that:

> "a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory."

The program modules 410, 420, 430, and 440 define a functional interrelationships between the computer-readable medium 400, audio-visual signal 401, and the processor 402. The Applicants contend that one skilled in the art would be able to define the metes and bounds of the term computer-readable medium.

35 U.S.C. § 101

Method **claims 1 and 3-7** have been amended to claim a processor programmed to perform the method. Accordingly, it is submitted that **Claims 1 and 3-7** meet the requirements of 35 U.S.C. § 101 as being a machine or apparatus.

Claim 12 has been amended to including a processor. Moreover, **claim 12** is directed to an article of manufacture, not a signal as the Examiner suggests. Because **claim 12** is directed to an article of manufacture, it is submitted that **claim 12** is related to an article of manufacture. Accordingly, it is submitted that **Claim 12** meets the requirements of 35 U.S.C. § 101 as being tied to a particular machine or apparatus.

35 U.S.C. § 112

Claim 11 has been amended to eliminate the means plus function language to which the Examiner objects and claims an image divider, a signature generator, and a signature embedder. The specification has been amended pursuant to 37 CFR 1.75(d) and MPEP § 608.01(o) to explicitly state, with reference to the terms and phrases of the claim element, what structure, materials, or acts perform the function recited in the claim element.

Finality of the Next Action Is Precluded

Applicant notes the Office Action dated July 15, 2009 does not reject each and every element of dependent **claims 4-7**. Although the Summary of the Office Action indicates that **claims 4-7** stand rejected, the Detailed Action omits any explanation of how or which part of the cited art anticipates each and every element of these claims. Applicant respectfully submits that this omission amounts to a failure to articulate a prima facie case of unpatentablity and the burden to rebut this "rejection" has not yet shifted to the Applicant. Rather, the Applicant is still entitles to an explanation of why **claims 4-7** are anticipated as the Examiner asserts. Consequently, a next Office action rejecting claims 4-7 cannot properly be made final since only then would the Applicant be obligated to rebut the rejection, presuming that such an Office action sets forth a prima facie case. (See MPEP § 706.07(a)).

The Claims Are Not Anticipated By Brunk et al.

Claim 1 calls for dividing a whole image, that contains at least one flat region, into a plurality of regions. Signatures bits are generated from each of the regions, including a region which contains flat content. The signature bits are included in a signature which is embedded across a portion of the image that is larger than one of the regions. The signature is embedded such that the signature bits, included in the signature, can be extracted even if the region with flat content has been replaced by tampering. The image is protected from tampering in the region of flat content. The Examiner has alleges that Brunk et al., particularly paragraphs 20, 24, and 25, include these limitations. The Examiner states that "the watermarked signal is the signature

that is embedded throughout the image". However, the Applicants fail to locate where that the signature is embedded throughout the image in the cited paragraphs. Therefore, the applicants respectfully disagree. Brunk et al. does disclose that the coefficient locations are fixed by a predetermined pattern and are "scattered among roughly 25 to 100 coefficient locations in the mid to mid-high frequency range of a Fourier transform domain of a block of image samples" (¶ 20, lines 12-15). More specifically, the frequency coefficients are scattered among a single block of image samples which directly teaches away from the Applicants' Claim 1. Furthermore, in the Brunk et al. embodiment where the frequency coefficients act as both the authentication signal and calibration signal, Brunk et al. discloses in paragraph 25 that "the embedder perceptually adapts the calibration signal to the host image block and adds it to that block" (lines 14-16), once again teaching that the signal is embedded into the single block from which it was derived which cannot be interpreted as a portion of the image which is larger than one of the regions.

Claim 11, as amended, calls for an image divider which divides images which have flat content into a plurality of blocks. A signature generator generates a signature where each block contributes at least one bit of the signature. A signature embedder embeds the signature across more than one of the blocks without subdividing the signature. Once again, the Examiner has cited Brunk et al. and states that in paragraphs 20 and 25 of Brunk et al. that "the watermarked signal is the signature that is embedded throughout the image". However, the Applicants fail to locate where that the signature is embedded throughout the image in the cited paragraphs. Therefore, the applicants respectfully disagree. Brunk et al. does disclose that the coefficient locations are fixed by a predetermined pattern and are "scattered among roughly 25 to 100 coefficient locations in the mid to mid-high frequency range of a Fourier transform domain of a block of image samples" (¶ 20, lines 12-15). More specifically, the frequency coefficients are scattered among a single block which directly teaches away from the Applicants' Claim 11. Furthermore, in the Brunk et al. embodiment where the frequency coefficients act as both the authentication signal and calibration signal, Brunk et al. discloses in paragraph 25 that "the embedder perceptually adapts the calibration signal to the host image block and adds it to that block" (lines 14-16), once again teaching that the signal is embedded into a single

block which cannot be interpreted as a portion of the image which is larger than one of the regions.

Claim 12, as amended, calls for a computer-readable medium having a plurality of computer-executable instructions which instructs a processor to authenticate images. The computer executable instructions comprises a first program module which divides the images into regions such that at least one of the regions includes an area of flat content. The second program module generates a signature such that at least one signature bit is from each region. The third program module embeds the signature in the images without subdividing the signature in at least a portion of the image which is larger than one of the regions such that the area of flat content is protected from tampering. Once again, the Examiner has cited Brunk et al. and states that in paragraphs 20 and 25 of Brunk et al. that "the watermarked signal is the signature that is embedded throughout the image". However, the Applicants fail to locate where that the signature is embedded throughout the image in the cited paragraphs. Therefore, the applicants respectfully disagree. Brunk et al. does disclose that the coefficient locations are fixed by a predetermined pattern and are "scattered among roughly 25 to 100 coefficient locations in the mid to mid-high frequency range of a Fourier transform domain of a block of image samples" (¶ 20, lines 12-15). More specifically, the frequency coefficients are scattered among a single block of image samples which directly teaches away from the Applicants' Claim 12. Furthermore, in the Brunk et al. embodiment where the frequency coefficients act as both the authentication signal and calibration signal, Brunk et al. discloses in paragraph 25 that "the embedder perceptually adapts the calibration signal to the host image block and adds it to that block" (lines 14-16), once again teaching that the signal is embedded into a single block which cannot be interpreted as a portion of the image which is larger than one of the regions.

New **claims 14 and 15** have been added to replace the method claims which were amended to become apparatus claims. Care has been taken to tie the method to a hardware component.

CONCLUSION

For the reasons set forth above, it is submitted that claims 1, 3-7, and 11-15 (all claims) distinguish patentably over the references of record and meet all statutory requirements. An early allowance of all claims is requested.

In the event the Examiner considers personal contact advantageous to the disposition of this case, the Examiner is requested to telephone Thomas E. Kocovsky, Jr. at 216.363.9000.

Respectfully submitted,

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